REMARKS

Claims 19-32 are pending.
Claim 21 is withdrawn.
Claims 19-32 are rejected.
Claims 19, 22, 23, 30 and 31 are amended.

Amended Claims 19, 22, 23, 29 and 30

Claim 19 and 30 has deleted the term "optional" in lines 6 and 7 respectively .
Claims 22 and 23 have limited the possible variations for R_2.
Claim 31 is amended to insert the phrase "wherein a polymer material comprising components" in order to clarify the antecedent basis.

No new matter is added.

35 USC 112, second paragraph

Claims 30-31 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Examiner states that Claim 30 recites the limitation "checking the color of the tag or sample". As the specification does not define such a step, the examiner finds it unclear what the applicant regards as his invention.

The applicants respectfully direct the examiner to the third paragraph on page 51 of the specification.

> "Intensity of irradiation may be monitored by observation of colour development or by comparison of the colour of the irradiated tag or sample with the colour of a tag or sample not irradiated".

Thus the applicants believe this step to be well defined by the specification and therefore not unclear.

The applicants believe this explanation and indication by the applicant as to the location of the explanation within the specification, overcomes the examiner's 112 rejection.

35 USC 102(b)

Claims 19-20 and 22-30 are rejected under 35 USC 102(b)as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Fujikawa, US 5,698,373.

Anticipation

Fujikawa teaches photocurable compositions which form a layer upon irradiation.
The essential ingredients of Fujikawa are monomers, a photopolymerization initiator and a dye precursor. The photopolymerization initiator is the color developer. This is clear from the examples 1-2, where no further additives are added-especially no phenolic type of compounds.

Fijikawa does teach a large number of possible other ingredients. Sulfur based antioxidants and phenol-based antioxidants are suggested.

Out of these many options, the phosphorus and sulfur-based antioxidants are preferable. However, the person skilled in the art reads further that these substances... together with a quinoline compound will effectively prevent the dye precursor...from developing color... under non-irradiation conditions (col. 6, line 62).

There is no suggestion that these substances (phenolics) can be used with a dye precursor on their own for developing color.

Further, the examiner has selected from a laundry list of ingredients, one which fits the present claim limitations. There is no guidance or direction and certainly no examples from Fujikawa which teaches with enough specificity the combinations as specifically claimed.

Nor does Fujikawa even remotely suggest that the specific group of phenolics can function as a color developer when combined with a colour former.

The examiner believes the limitations that the polymer material is in the form of a fiber, textile, nonwoven or film and is contained on or visibly below the surface of a protective clothing, mask or irradiation indicating tag and "said protective clothing, mask or irradiation indicating tag undergoes an

irreversible change upon exposure to irradiation are merely intended uses and add no patentable weight to the claim.

Applicants disagree. A preamble limits the invention if it recites essential structure or steps, or if it is "necessary to give life, meaning and vitality to the claim. Furthermore, the dependence on a particular disputed preamble phrase for antecedent basis can limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention.

This is true in the present case. The structural limitations in the preamble are "in the form of a fiber, textile, nonwoven or film is contained on or visibly below the surface of a protective clothing, a mask, or an irradiation indicating tag. The phrase "protective clothing, mask or irradiation indicating tag" appears again in the body of the claim. Thus indicating that the preamble is essential to understanding the limitations of present claims; that is that the polymer material is a protective clothing, mask or irradiation indicating tag.

As Fujikawa does not suggest such articles, the applicants believe the anticipation rejection is improper.

Obviousness

The applicants respectfully maintain that the specific combination of elements (phenolics + colour former) do not merely perform the function that each element performs separately but lead to a function not suggested by Fujikawa.

In fact, Fujikawa suggests only the well known function for the phenolics as stabilizer. Specifically, Fujikawa teaches that sulfur-based antioxidants may be used as dark coloration **preventing** agents. See col. 6, lines 24-25.

Applicant teaches the **opposite**; that is, to now use the phenolic as a **colour developing** agent in combination with a colour former when exposed to irradiation.

Thus the applicants submit that the combination (phenolic + color former) when part of protective clothing, mask or irradiation indicating tag which undergoes irradiation is unobvious because the combination leads to a function not suggested (colour development) but even taught against in Fujikawa (coloration preventing agents).

Claims 19-20 and 22-32 are rejected under 35 USC 103(a) as being unpatentable over Hayashihara, US 5,824,715 in view of Greer, US 2002/0057881.

The examiner continues to maintain his opinion that the limitations where the polymer material is "in form of a fiber, textile, nonwoven or film, "it is contained on or visibly below the surface of a protective clothing, mask or irradiation indicating tag" and "said protective clothing, mask or irradiation indicating tag undergoes an irreversible change upon exposure to irradiation" are merely intended use and have no patentable weight.

Applicants disagree as explained above. A preamble limits the invention if it recites essential structure or steps, or if it is "necessary to give life, meaning and vitality to the claim". Furthermore, the dependence on a particular disputed preamble phrase for antecedent basis can limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention.

This is true in the present case. The structural limitations in the preamble are "in the form of a fiber, textile, nonwoven or film is contained on or visibly below the surface of a protective clothing, a mask, or an irradiation indicating tag. The phrase "protective clothing, mask or irradiation indicating tag" appears again in the body of the claim. Thus indicating that the preamble is essential to understanding the limitations of present claims; that is that the polymer material is a protective clothing, mask or irradiation indicating tag.

Examiner states that Hayashihara discloses a marking composition comprising an energy ray curing resin and a leuco dye, equivalent to the color former of the instant application. Hayashihara further teaches that the composition may comprise an antioxidant but fails to disclose the type of antioxidant. The antioxidants is one of a number of nonessential additives that might be added to the compositions of Hayashihara.

Hayashihara discloses a number of colour developers which are phenolics. See col. 5. lines 5-34. However, these are not encompassed by the present claims as none are substituted 1-3 times selected from alkyl of 1 to 12 carbon atoms. See amended claims 19 and 30. The examples of Hayashihara contain various phenolics as colour developers but none meet the limitations of the present claims.

Geer teaches radiation-curable coating compositions comprising a dye or dye precursor, equivalent to the color former of instant, resins and antioxidants which minimize or even inhibit destruction of the dye. Tetrakis (methylene 3-(3', 5'-di-t-butyl-4'-hydroxyl-phenyl propionate methane is mentioned specifically. See [0142].

Accordingly, the examiner believes it would be obvious to combine to include a phenolic antioxidant in the marking composition of Hayashihara in order to minimize or inhibit the destruction of the dye and the coating.

Applicants point out that combinations can be obvious especially when each component merely performs the function that each element performs separately.

However, the present combination is NOT such a combination.

For clarity, the dye developer in Geer is as in Fujikawa, the photoinitiator. There are no phenolic antioxidants exemplified in Geer.

The phenolic antioxidants suggested in Geer are added to his composition in order to inhibit the destruction of the dye.

It is fairly clear that neither Geer or Fujikawa recognized that certain phenolic as presently claimed can be combined with a colour former and the phenolic acts as a colour developer. In fact, each reference teaches the opposite; that is, the combination function to either stabilize the dye or compositions or prevent discoloration.

The applicants respectfully maintain that the specific combination of elements (phenolics + colour former) do not merely perform the function that each element performs separately as in Hayashihara (antioxidant) or Geer (dye stabilizer) but lead to a function/result not suggested by either. The combination leads to a completely new function/result not previously understood or known until now. By combining the specific phenolics with colour formers, a new result is apparent from the examples presently disclosed. The phenolics with colour formers develop color when irradiated. This unexpected result makes the protective clothing, mask or irradiation indicating tags comprising components a) and b) which undergoes an irreversible color change upon exposure to irradiation unobvious in light of Hayashihara and Geer.

In regard to claim 30:

The applicants respectfully bring to the examiner's attention that claim 30 requires monitoring irradiation by **X-ray** or **radioactive material. While both references mention irradiation generally, neither reference mentions irradiation by X-ray or radioactive material specifically.** As the claim is a process directed to monitoring irradiation by X-ray or radioactive material, and neither reference mentions such a process, the applicants believe the obviousness rejection is improper and overcome.

Reconsideration and withdrawal of the rejection of claims 19-20 and 22-30 is respectfully solicited in light of the remarks and amendments *supra*.

Since there are no other grounds of objection or rejection, passage of this application to issue with claims 19-20 and 22-32 is earnestly solicited.

Applicants submit that the present application is in condition for allowance. In the event that minor amendments will further prosecution, applicants request that the examiner contact the undersigned representative.

Respectfully submitted,

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Enclosure: Request for Continued Examination and petition for extension of time.